



GENERAL MONITORS
Protection for life.

MODEL IR7000

Infrared Carbon Dioxide Point Detector



Features

- No routine calibration required
- Fail-to-safe operation
- Heated optics
- “Dirty optics” output
- Explosion-proof design
- RS-485 MODBUS communications link

Benefits

- Low maintenance cost
- Virtually eliminates failure on demand
- Avoids condensation and false alarms
- Differentiates cleaning requirement from true fault
- Can be used in hazardous plant areas
- Two-way addressable communication for status information

Description

The General Monitors Model IR7000 Infrared Point Detector is a microprocessor-based Carbon Dioxide gas detector that continuously monitors CO₂ in ppm levels.

The IR7000 detection principle is based on measuring the absorption of infrared radiation passing through a volume of gas using a dual beam with a single detector. The IR detector measures the intensity of two specific wavelengths, one at an absorption wavelength and another outside of the absorption wavelength. The gas concentration is determined by a comparison of these two values.

All of the IR7000's electronics are contained within an explosion-proof housing allowing detector information to be processed at the point of detection. The IR7000 provides a 4-20mA signal proportional to 0-100% full scale. Another feature of the IR7000 is its RS-485 communications output for linking up to 128 Model IR7000's in series or up to 247 units with repeaters. The RS-485 output provides status, fault and other information for operation, including troubleshooting, or programming the detector.

The IR7000 Infrared Point Detector is available in either an aluminum or stainless steel housing and is designed for use in Class I, Div. 1, Groups B, C & D and Zone 1 areas. The housing is IP66/Type 4X rated.

Applications

- Chemicals
- Pharmaceuticals
- Pesticides
- Fertilizers
- Agriculture/Horticulture (Greenhouses)
- Food & Beverage Bottling Plants
- Sewer Entry
- Wastewater Treatment Facilities
- Coal Gasification
- Pulp & Paper
- Metals
- Enhanced Oil Recovery



MODEL IR7000

System Specifications

Sensor Type: Infrared absorption type

Measuring range: 0-5000 ppm

Gas: Carbon Dioxide (CO₂)

Sensor life: Greater than 5 years

Accuracy: ± 5% full scale ≤ 2500 ppm
± 10% full scale > 2500 ppm

Response Time: (with 100% FS Gas applied)
T50 ≤ 7 sec. & T90 ≤ 15 sec.

Modes: Power-on self test, normal operation, calibration (zero only or complete calibration)

Accessories: Flow block, duct mount kit, junction box, remote gassing guard, spray down guard, field mounted display

Classification: Class I, Division 1, Groups B, C & D, EE xd IIB + H₂ T5, IP66, Type 4X

Warranty: Two years

Approvals: CSA, CENELEC & CE Marking

Environmental Specifications

Operating Temperature
Range: -40°F to +122°F
(-40°C to +50°C)

Storage Temperature
Range: - 58°F to +140°F
(-50°C to +60°C)

Operating Humidity
Range: 5% to 100% RH, non-condensing

Mechanical Specifications

Diameter: 2.9" (73.7mm)

Length 10.2" (259mm)

Weight: 3lbs (1.4kg) - aluminum
6lbs (2.7kg) - stainless steel

Mounting: 3/4" NPT

Housing: Aluminum (stainless steel optional)

Electrical Specifications

Input Power: 20-36 VDC
24 VDC @ 0.40 amp (nominal)

Analog Signal: 4-20mA (600 ohms max.)
Fault 0mA
Cal & Zero 1.5mA
Dirty Optics 2.0mA
Zero Reading 4mA ± 0.2mA
0 to 100% FS 4 to 20mA (proportional)
Over-range 20 to 22mA

RS-485 Output: MODBUS RTU suitable for linking up to 128 units and up to 247 units with repeater(s).

RFI/EMI Protection: Complies with EN50081-2, EN50082-2

Cable Requirements: Max. distance between IR7000 and power source @ 24 VDC nominal (8 ohms loop) 14 AWG 1470 ft (2 mm²- 448m)

Faults Monitored: Calibration errors, EPROM and EEPROM checksum errors, optics failure/blockage, low supply voltage

Standard Configuration: IR7000-0-1-2

Specifications subject to change without notice.

Represented by:

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